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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/807,696	04/17/2001	Tsuyoshi Okada	50352-019	2515
20277	7590	11/06/2003	EXAMINER	
MCDERMOTT WILL & EMERY 600 13TH STREET, N.W. WASHINGTON, DC 20005-3096			GRIFFIN, WALTER DEAN	
			ART UNIT	PAPER NUMBER

1764

DATE MAILED: 11/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/807,696

Applicant(s)

OKADA ET AL.

Examiner

Walter D. Griffin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 August 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 April 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 0401.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Specification

This application does not contain an abstract of the disclosure as required by 37 CFR 1.72(b). An abstract on a separate sheet is required.

Claim Objections

Claims 5-7, 10, and 13-17 are objected to because of the following informalities:

Claim 5, which depends on claim 1, refers to a “fourth hydrotreating step”. Since claim 1 contains only references to a “first hydrotreating step” and a “second hydrotreating step”, the reference to a “fourth hydrotreating step” in claim 5 is confusing. It is noted that claim 10, which depends on claim 5, also contains the expression “fourth hydrotreating step”. The examiner recommends that an alternative expression be used in claims 5 and 10.

Claim 6, which is an independent claim, refers to a first and a fifth hydrotreating step. Since there is no reference to any other hydrotreating steps in the claim, the reference to a fifth hydrotreating step is confusing. Likewise, claim 7, which depends on claim 6, refers to a third separation step and a fifth separation step. Since there is no reference to a prior separation in either claim 6 or claim 7, the reference to a third or fifth separation step is confusing.

Claim 13, which is an independent claim, contains the expression “a second hydrotreating step”. Since there is no reference to a first hydrotreating step in claim 13, the reference to a second hydrotreating step is confusing. Likewise, claims 14 and 15, both of which depend on claim 13, contain the expressions “a third hydrotreating step” and “a fourth hydrotreating step”.

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Since there is no reference to a first hydrotreating step in any of claims 13-15, these expressions are confusing.

Claim 16, which is an independent claim, contains the expression "a fifth hydrotreating step". Since there is no reference to first through fourth hydrotreating steps in claim 16, the reference to a fifth hydrotreating step is confusing. Likewise, claim 17, which depends on claim 16, contains the expressions "a fifth hydrotreating step" and "a third separation step". Since there is no reference to any prior hydrotreating or separation steps in claims 16 or 17, these expressions are confusing.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 7 and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 7 is indefinite because the reference to the "fifth separation step" appears to be incorrect. It appears as if the correct expression should refer to a hydrotreating step.

Claim 9 is indefinite because it is unclear what separation step is being referred to by the expression "the last separation step". Claim 1 only contains a reference to one separation step. Therefore, it is unclear if the expression in claim 9 refers to the separation step in claim 1 or refers to another separation step.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 18 is rejected under 35 USC 102(b) as being anticipated by JP 06207179A.

The JP 06207179A reference discloses a gas turbine fuel oil that has a sulfur concentration of 470 ppm, contains no detectable alkaline metal, alkaline earth metal, vanadium, or lead, and has a viscosity or 0.3 cSt at 100°C. See the English language abstract and applicant's discussion of this reference on page 26 of the specification.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

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4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-5 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gould (US 3,855,113).

The Gould reference discloses a process for converting a feed oil. The process comprises separating the oil in an atmospheric distillation step to produce a light fraction and a residue. The atmospheric residue is then further separated in a vacuum distillation step to produce a light and heavy fraction. The light fraction produced in the atmospheric distillation step and the light fraction produced in the vacuum distillation step are both subjected to a common hydrotreating step. The heavy fraction produced in the vacuum distillation step is subjected to a thermal cracking process. This heavy fraction produced in the vacuum distillation step can also be subjected to a hydrotreatment process.

The Gould reference does not disclose the characteristics of the fuel oil obtained, does not disclose the yields, and does not disclose hydrotreating a light oil produced in the thermal cracking step. The Gould reference also does not disclose the atmospheric distillation of the fuel oil as in claim 8 and does not disclose the use of the produced oil as a fuel oil for a boiler.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have produced an oil having the claimed characteristic and yield because the converted hydrocarbons consists of a wide boiling range of materials. The disclosed

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separations and any additional separations would necessarily produce products of various characteristics and it is within the level of ordinary skill to recover any fraction that is suitable for the desired purpose including a fuel oil.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Gould by hydrotreating the light oil produced in the thermal cracking step because Gould discloses that hydrotreating is performed to remove impurities such as sulfur. Therefore, if the light oil still contains impurities, one would hydrotreat the oil in order to purify the oil.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gould (US 3,855,113) as applied to claim 1 above, and further in view of Yoshinaga et al. (US 4,348,288).

As discussed above, the Gould reference does not disclose the desalting step.

The Yoshinaga reference discloses the need for desalting oils. See the entire document.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Gould by including a desalting step as suggested by Yoshinaga because corrosion and erosion problems due the presence of impurities in the oil will be eliminated.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gould (US 3,855,113) as applied to claim 1 above, and further in view of Liu (US 5,958,365).

As discussed above, the Gould reference does not disclose producing hydrogen by oxidizing the feed oil.

The Liu reference discloses the production of hydrogen from a heavy oil and then using the hydrogen in hydrotreating zones. See column 1, line 60 through column 2, line 13.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Gould by producing hydrogen as suggested by Liu because a cheap source of hydrogen will be provided thereby improving the economics of the process.

Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Corneil et al. (US 2,775,544) in view of Louie et al. (US 4,990,242).

The Corneil reference discloses a process for converting a hydrocarbon. The process comprises distilling the hydrocarbon in first separation zone to produce a light oil and a residue. The residue is hydrotreated and then subjected to further separation by deasphalting. See column 1, lines 39-52 and column 4, lines 7-66.

The Corneil reference does not disclose the hydrotreating of the light oil produced in the first separation zone. It also does not disclose the fuel oil characteristics or yield.

The Louie reference discloses the hydrodesulfurization of various fractions of hydrocarbons recovered in a separation step. See the entire document.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Corneil by hydrotreating the light oil recovered in the first separation zone as suggested by Louie because, from the teachings of Louie, it is clear that the sulfur compounds would remain in the light fraction of Corneil. Therefore, one would hydrotreat the light oil of Corneil in a manner as disclosed in Louie in order to produce a light oil having fewer impurities.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have produced an oil having the claimed characteristic and yield because

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the converted hydrocarbons consists of a wide boiling range of materials. The disclosed separations would necessarily produce products of various characteristics and it is within the level of ordinary skill to recover any fraction that is suitable for the desired purpose.

Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morel et al. (US 6,007,703).

The Morel reference discloses a process for converting a hydrocarbon. The process comprises separating the hydrocarbon in an atmospheric distillation zone to produce an atmospheric distillate and an atmospheric residue. The atmospheric residue is then passed to a vacuum distillation zone from which a vacuum distillate and a vacuum residue are recovered. The vacuum residue is then passed to a deasphalting zone to produce a deasphalted hydrocarbon (i.e., light fraction) and a residue (i.e., heavy fraction). The deasphalted hydrocarbon and the vacuum distillate are then subjected to a hydrotreatment. The vacuum residue may also be passed to a hydrotreating zone. See column 2, line 36 through column 5, line 51.

The Morel reference does not disclose the characteristics of the fuel oil or the yield.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have produced an oil having the claimed characteristic and yield because the converted hydrocarbons consists of a wide boiling range of materials. The disclosed separations would necessarily produce products of various characteristics and it is within the level of ordinary skill to recover any fraction that is suitable for the desired purpose.

Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beuther et al. (US 2,945,803).

The Beuther reference discloses a process for converting a hydrocarbon. The process comprises contacting an atmospheric distillation residue with hydrogen and catalyst in a hydrotreating zone thereby producing a hydrotreated oil. The hydrotreated oil is further distilled to produce a light oil and a heavy oil. See column 1, lines 43-61.

The Beuther reference does not disclose the fuel oil characteristics or yield. It also does not disclose that the second distillation is a vacuum distillation.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have produced an oil having the claimed characteristic and yield because the converted hydrocarbons consist of a wide boiling range of materials. The disclosed separations would necessarily produce products of various characteristics and it is within the level of ordinary skill to recover any fraction that is suitable for the desired purpose.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Beuther by vacuum distilling the hydrotreated oil because one would choose conditions that produce the desired product in the most efficient manner.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 06207179A in view of admitted prior art.

As discussed above, the JP 06207179A reference does not explicitly disclose the power generation method in either the abstract or applicant's discussion on page 26.

Applicant admits on pages 1 and 2 of the specification that the power generation steps of claim 19 are known.

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It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the fuel oil of JP 06207179A in the known power generation steps because the fuel oils of the reference are typically used in power generation. Therefore, the fuel oil of JP 06207179A would be expected to be an effective fuel for generating power.

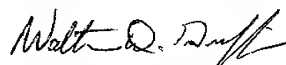
Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art not relied upon discloses hydrocarbon conversion processes.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter D. Griffin whose telephone number is 703-305-3774. The examiner can normally be reached on Monday-Friday 6:30 to 4:00 with alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 703-308-6824. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.



Walter D. Griffin
Primary Examiner
Art Unit 1764

WG
November 3, 2003